

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2022/2023 (TERM ID 2215)

PCA0016 – COMPUTER APPLICATIONS AND PROGRAMMING

(Foundation in Engineering)

13 FEBRUARY 2023

2.30 p.m. - 4.30 p.m.

(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 3 pages excluding cover page with **FIVE** questions only.
2. Attempt **ALL** questions. Distribution of the marks for each question is given.
3. Please write all your answers in the Answer Booklet provided.

Question 1: [20 marks]

- a) Describe the information processing cycle of a computer using a block diagram.
[5 marks]
- b) Name and describe briefly **Four** steps of the machine cycle of a computer.
[4 marks]
- c) Your cousin has just enrolled in a university. He asks for your advice about buying a personal computer. Please advise him on the following, with justification:
- i) Type of computer.
 - ii) Computer hardware including CPU, RAM size, and type of hard disk.
 - iii) Computer software including the operating system, FOUR types of productivity software with one each example (for assignment report and presentation slide), and the need of personal antivirus software.
- [1+3+3 marks]
- d) With the easy accessibility of online services, users place files on internet hard drive or storages. Give TWO advantages and TWO disadvantages of using online storages.
[4 marks]

Question 2: [20 marks]

- a) Briefly explain FIVE functions of an operating system installed on computers.
[5 marks]
- b) Distinguish system software and application software. Give TWO examples with their purpose for each type.
[3+3 marks]
- c) Identify the program or software that is best suited for the following tasks:
- i) Bank to create, access, and manage customer information, account activities, payment, etc.
 - ii) An engineer wants to create a 2-dimensional model, and test the model by simulating real-world conditions.
 - iii) You want to modify an image, and reduce its file size.
- [3 marks]
- d) A series of activities are involved during the process of developing projects, including documents, presentations, spreadsheets etc. Describe the activities involved in sequence to develop these projects.
[6 marks]

Continued...

Question 3: [20 marks]

a) Write down the 6 steps in problem-solving.

[6 marks]

b) Sketch a flow chart based on the following pseudo code:

Step 1: Read in a value for the CGPA

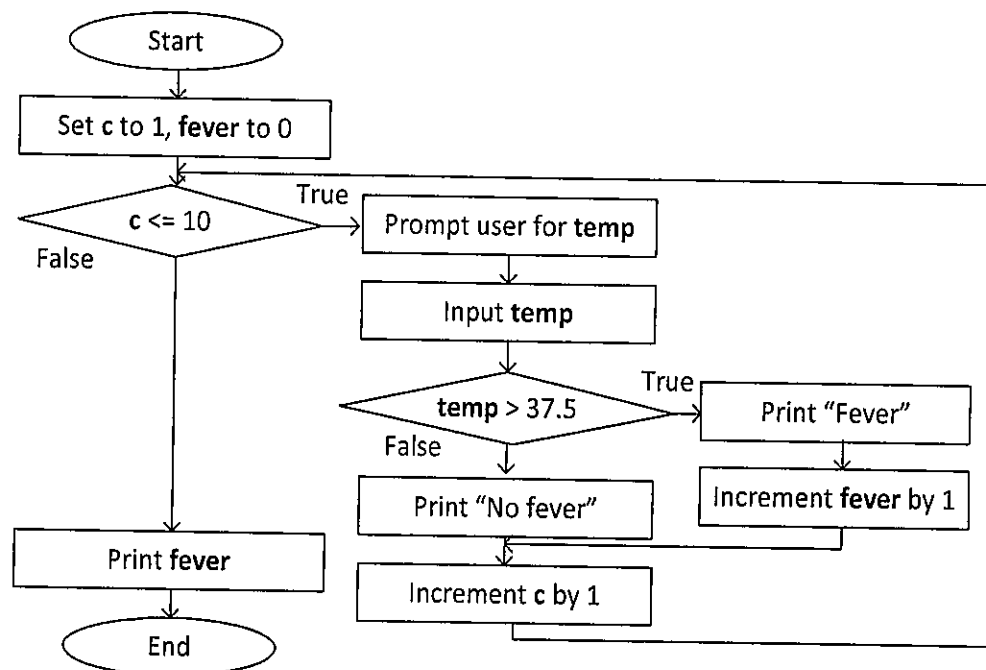
Step2: Check that it is either less than 2.0 or greater than or equal to 2.0

Step3: If the value is less than 2.0 output a message "Under Probation"

Step4: Otherwise output the message "Pass"

[6 marks]

c) The following flowchart shows an algorithm that inputs a series of 10 body **temperatures** of shoppers to a shopping mall. The algorithm counts **the number** of shoppers who is having a fever (temperature greater than 37.5°C), and should not be allowed into the premises. Based on the flowchart, write a complete C program.



[8 marks]

Continued...

Question 4: [20 marks]

a) Write appropriate C statement that performs each of the following tasks:

- i) Write a condition that tests value is in the range of 70 and 80 (both numbers are inclusive)
- ii) Using suitable in-built math functions, assign the result of $\sqrt{a^3 + b^3}$ to a double variable c.
- iii) Write a function prototype for a function called printTable() that receives a float argument size indicating the size of the multiplication table to be printed. The function does not return any value.
- iv) Write a function call to function checkEven() by passing variable n as the only function argument, and assign the function-return to variable check.

[2+2+2+2 marks]

- b) Write a complete C program consisting of a user-defined function called **fdInterest()** that calculates Fixed Deposit (FD) interest for a bank. The FD interest rate is 2.5% per annum.

The function **main()** performs each of the following tasks:

- prompts user and inputs for an integer **principle**,
- calls function **fdInterest()** by passing **principle** by value, and assigns the return of the function call to **interest**,
- displays the calculated **interest** and **payable** amount at maturity on the screen.

A sample program output is given in the figure below (texts in **bold** are user inputs).

Enter principle: 5000 FD interest = RM125.00 Total payable at maturity = RM5125.00

[12 marks]

Question 5: [20 marks]

- a) Sketch and label the THREE basic network topologies used in a network.

[6 marks]

- b) Sketch a hybrid network topology that comprises all the basic topologies from part (a).

[4 marks]

- c) List down and briefly explain the FOUR types of multimedia applications.

[10 marks]

End of Page